

REMARKS

I. Introduction

Claims 8 to 21 are currently pending in the present application. In view of the foregoing amendments and the following remarks, it is respectfully submitted that all of the presently pending claims are allowable, and reconsideration is respectfully requested.

Applicants thank the Examiner for considering the previously filed Information Disclosure Statement, 1449 paper, and cited references.

II. Rejection of Claims 8 to 17 Under 35 U.S.C. § 103(a)

Claims 8 to 17 were rejected under 35 U.S.C. § 103(a) as unpatentable over European Patent Application No. 0 304 257 (“McGregor et al.”) “in view of well known prior art.” It is respectfully submitted that the present rejection should be withdrawn for the following reasons.

As an initial matter, reference in the Office Action to “well known prior art” is not understood. Clarification is respectfully requested. Furthermore, Applicants respectfully traverse any and all assertions of well known fact and respectfully request published information and/or an affidavit under 37 C.F.R. § 1.104(d)(2) to support any and all assertions of well known fact.

In the following, cites to column and line numbers refer to U.S. Patent No. 4,965,833.

Claim 8 relates to a method for operating a voice-controlled system in a motor vehicle, and recites detecting a total signal which includes a voice signal and a background noise signal by microphones, performing a frequency shift on each of the detected total signals, and subtracting the frequency-shifted total signal (including a voice signal and a background noise signal) of one microphone from a detected signal of a second microphone, and vice versa.

The Office Action admits that McGregor et al. do not disclose subtracting a frequency-shifted total signal of one microphone from a detected signal of another microphone. Instead, the Office Action appears to assert that feeding of a phase-reversed sound of an additional microphone into a pre-amplifier of the system of McGregor et al., as allegedly discussed at column 6 line 65 to column 7, line 6, is somehow pertinent to the issue of patentability of claim 8 or is somehow related to subtraction of a non-phase-reversed sound from a signal.

However, McGregor et al. discuss a voice enhancer system for a car, which may include two sets of microphones and two sets of speakers. Col. 2, lines 59 to 67, and col. 3, lines 13 to 22. Each set of microphones may be connected to a set of speakers. *Id.* Between each microphone set/speaker set circuit, an amplifier/electrical conditioning unit is provided to modify the microphone's detected sounds, for example by a frequency shift to increase all speech frequencies, before they are transmitted to the corresponding speaker. Col. 3, lines 1 to 4. These microphones are intended for relaying the sound of car occupants to speakers, and accordingly detect a signal that includes a voice signal. Col. 4, lines 23 to 35. Aside from these microphones, McGregor et al. discuss a modification in which an additional microphone may be provided. It is the phase of a signal of this additional microphone which McGregor et al. state is reversed and added to other microphone signals. Col. 6, line 65 to col. 7, line 6. However, this additional microphone is provided solely for the purpose of picking up engine noise, and accordingly does not detect a signal that includes a voice signal. Furthermore, McGregor et al. state that the reason for the frequency shift is so that the signal output by the loudspeaker would be filtered as noise when and if it is detected by a microphone, thereby preventing 'howl-around'. Col. 4, lines 18 to 19. McGregor et al. do not disclose, or even suggest, that the engine noise signal detected by the additional microphone is subject to a frequency shift. Furthermore, nowhere do McGregor et al. disclose or suggest that the signal of the microphones for detection of a vehicle occupant's voice signal is phase-reversed and added to a signal of the additional microphone for detection of the engine noise.

Accordingly, while McGregor et al. may refer to the addition of a phase-reversed engine noise signal of an additional microphone to a signal of a microphone for detection of a vehicle occupant's voice signal, nowhere do McGregor et al. disclose, or even suggest, subtracting *a frequency-shifted* total signal that includes *a voice signal* and a background noise signal of one microphone from a detected signal of a second microphone, *and vice versa*. Thus, McGregor et al. do not disclose or suggest all of the features recited in claim 8. It is therefore respectfully submitted that McGregor et al. do not render unpatentable claim 8.

Claim 13 relates to a device for operating a voice-controlled system in a motor vehicle. Claim 13 recites a frequency-shifting device connected between microphones of one subsection and loudspeakers of another subsection. Claim 13 further recites a summation point corresponding to each of the subsections, such that the summation point subtractively superimposes a loudspeaker signal and a microphone signal of the respective subsection. The Office Action admits that McGregor et al. do not disclose subtractive superimposition of

signals. Instead, the Office Action appears to assert that feeding of a phase-reversed sound of an additional microphone into a pre-amplifier of the system of McGregor et al., as discussed at column 6 line 65 to column 7, line 6, is somehow pertinent to the question of patentability of claim 13 or is somehow related to subtractive superimposition of signals. However, the sound subject to phase-reversal in McGregor et al. is detected by a microphone for picking up an engine noise-signal. This microphone is not connected to a loudspeaker. Furthermore, as set forth above in support of the patentability of claim 8, this microphone is not connected to a frequency-shifting device. Accordingly, McGregor et al. do not disclose or suggest subtractively superimposing a parallelly tapped loudspeaker signal and the microphone signal of the respective subsection, *where a frequency-shifting device* is connected between the loudspeaker of the subsection and the microphone of a different subsection, and *where a frequency shifting device* is connected between the microphone of the subsection and the loudspeaker of the different subsection. Furthermore, claim 13 recites a summation point corresponding *to each subsection*. As set forth above in support of the patentability of claim 8, McGregor et al. do not disclose, or even suggest, subtracting a signal detected by voice detecting microphones from an engine noise signal detected by an additional microphone. Thus, McGregor et al. do not disclose, or even suggest, all of the features recited in claim 13. It is therefore respectfully submitted that McGregor et al. do not render unpatentable claim 13.

As for claims 9 to 12, which ultimately depend from claim 8 and therefore include all of the features recited in claim 8, it is respectfully submitted that McGregor et al. do not render unpatentable these dependent claims for the same reasons set forth above in support of the patentability of claim 8. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988) (any dependent claim that depends from a non-obvious independent claim is non-obvious).

As for claims 14 to 17, which ultimately depend from claim 13 and therefore include all of the features recited in claim 13, it is respectfully submitted that McGregor et al. do not render unpatentable these dependent claims for the same reasons set forth above in support of the patentability of claim 13. *Id.*

In view of the foregoing, withdrawal of this rejection is respectfully requested.

III. Allowable Subject Matter

Applicants note with appreciation the indication of allowable subject matter contained in claims 18 to 21. In this regard, the Examiner will note that each of claims 18 to

20 has been rewritten in independent form to include all of the limitations of its respective base claim. It is therefore respectfully submitted that claims 18 to 20 are in condition for immediate allowance. Since claim 21 depends from claim 20, it is respectfully submitted that claim 21 is also in condition for immediate allowance.

IV. Conclusion

In light of the foregoing, it is respectfully submitted that all of the presently pending claims are in condition for allowance. Prompt reconsideration and allowance of the present application are therefore earnestly solicited.

Respectfully submitted,

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